



# Massachusetts Global Warming Solutions



## Massachusetts Global Warming Solutions Act (GWSA) and The Clean Energy and Climate Plan for 2020 An Overview

Energy Policy Review Commission  
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Aisling O'Shea, EEA Global Warming Solutions Manager

• GWSA Overview • Clean Energy and Climate Plan • Implementation • Strategies • Inventory •

# Agenda

- **GWSA Overview**
  - Implementation Objectives for 2020 Plan
- **Clean Energy and Climate Plan**
  - Strategies
  - Subcommittees
  - Measuring progress
- **Q&A**

# Global Warming Solutions Act

- **GWSA Legislation enacted in 2008, requires:**
  - EEA and MassDEP to collaborate with other agencies to reduce GHG emissions to the limits established in M.G.L. Ch. 21N
  - Reductions of GHG emissions by 10-25% below 1990 Baseline Levels by 2020 and 80% reduction by 2050
  - Establishment of a GHG emissions registry and reporting system, and publication of an Inventory with comprehensive estimates of GHG emissions in the Commonwealth.

# Global Warming Solutions Act

- EEA set goal to reduce emissions by 25% below 1990 baseline by 2020.
- Issued the “Clean Energy and Climate Plan for 2020” (the 2020 Plan), released in Dec 2010; implementation underway.
- 5-year report on GWSA implementation due January 1, 2014
- 5-year update of 2020 Plan (Dec 2015)
- Other requirements
  - Convene advisory committees
  - Prepare Adaptation Report (released September 2011)  
<http://www.malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter298>



# Implementation Objectives

- Workplans for the 28 strategies in the 2020 Plan
- Communicating progress
- Measuring GHG reductions and evaluating strategy implementation
- Update plans based on success of implementing strategies
- Integration with other priorities of the Administration



# Implementation Advisory Committee (IAC)

- Established to advise Secretary on 2020 Plan implementation
- Composed of leaders in business, environmental advocacy, industry, and academia.
- Co-Chaired by Undersecretary for Energy and Undersecretary for Environment
- Meets three times annually
  - June 2012
  - September 2012
  - January 2013
  - June 2013



# Clean Energy and Climate Plan

- Provides rationale for GHG emission reduction in Massachusetts (economic, health, security, environmental)
- Outlines 28 policies/strategies to reduce emissions from the four primary emissions sectors, & includes 3 cross-cutting strategies (e.g. MEPA).
- EEA/EOHED/MassDOT collaboration
- GWSA Subcommittees are working on implementation



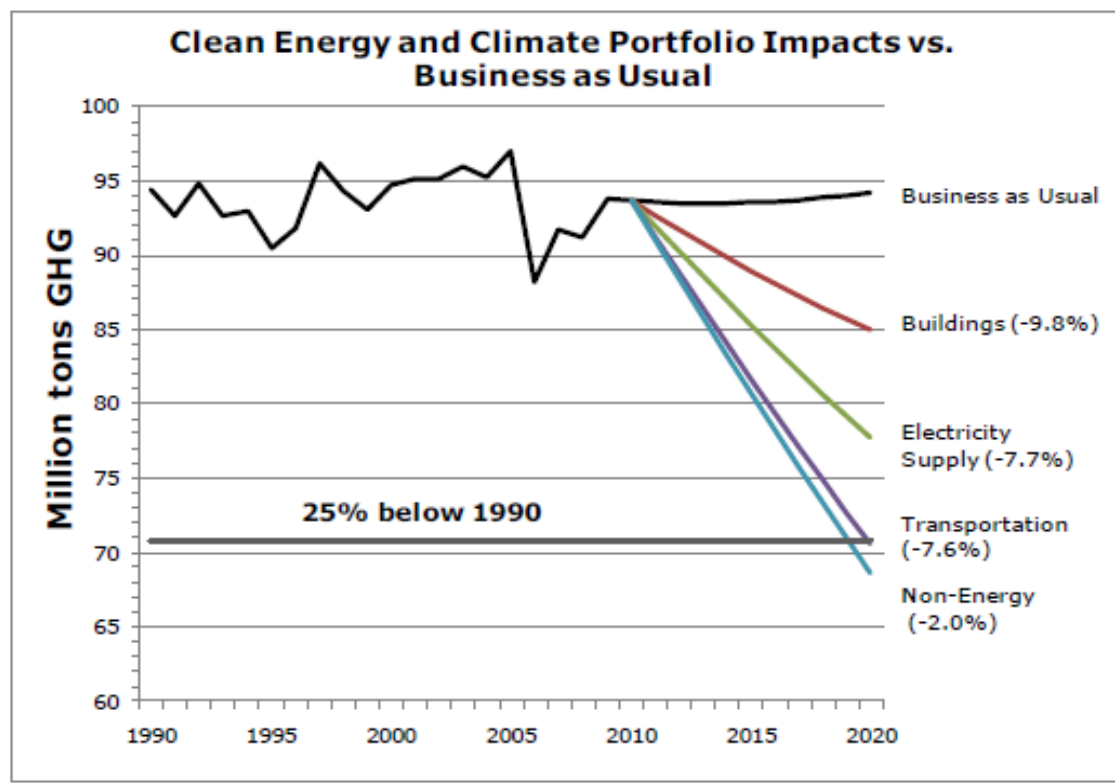
# Massachusetts GHG emissions by Sector

(Million Metric Tons of Carbon Dioxide Equivalents, MMTCO<sub>2</sub>e)

## Projected impact of 2020 strategies

Source Massachusetts Greenhouse Gas Inventory

<http://www.mass.gov/dep/air/climate/ghginv9012.xls>



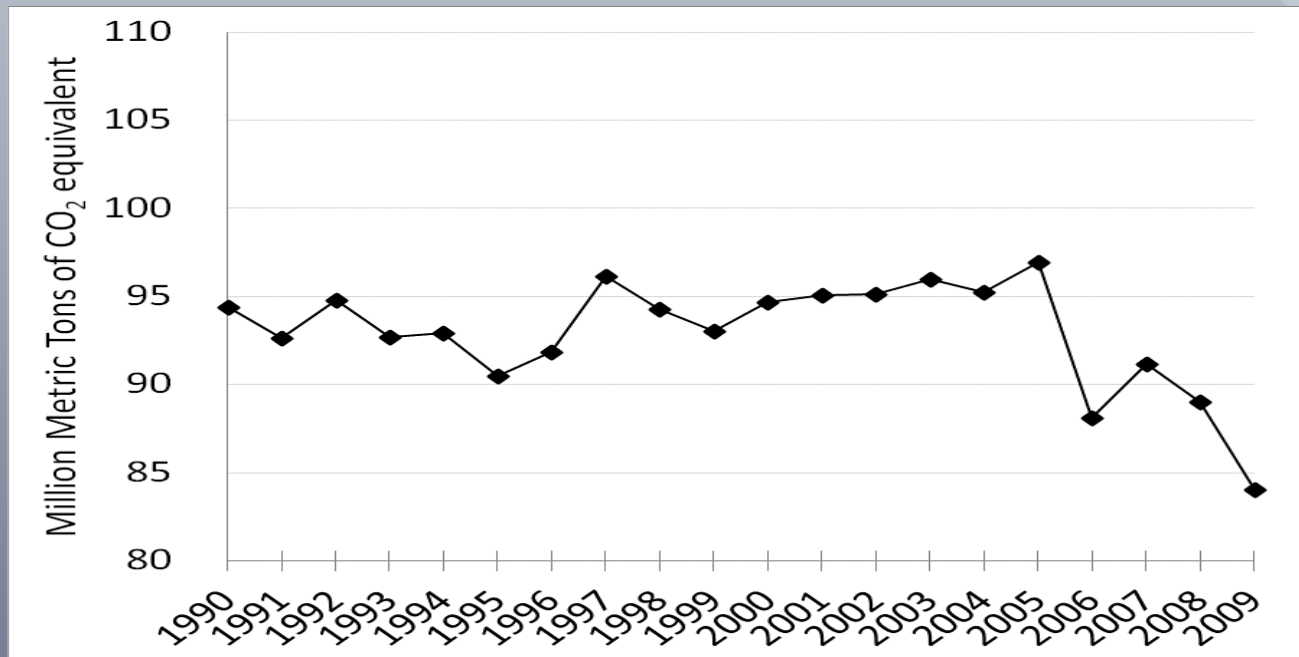


## Massachusetts GHG emissions

11 % CO<sub>2</sub>e emission drop 1990-2009 influenced by many factors including: economy and natural gas prices; weather patterns affecting heating and cooling loads; and state investments in energy efficiency measures.

Data source: Massachusetts Greenhouse Gas Inventory

<http://www.mass.gov/dep/air/climate/ghginv9012.xls>



# Regional Greenhouse Gas Initiative (RGGI)

February 2013 - nine states agreed to lower the regional carbon dioxide emissions cap from the current level of 165 million to 91 million tons per year.

An independent analysis concluded that the first three years of the RGGI program (from 2009 through 2011) resulted in:

- \$1.6 billion in net present economic value added to the region, and \$400 million to Massachusetts;
- Electricity consumers overall - households, businesses, government users, and others - enjoying a net lifetime gain of nearly \$1.1 billion, as their overall electric bills drop over time;
- A lowering by more than \$765 million in the total dollars that Massachusetts and the RGGI states send outside the region in the form of payments for fuel.

# Proposed RGGI Changes

- If adopted across the region, Massachusetts estimates an additional \$350 million in allowance auction revenue will be collected for 2012-2020.
- As per the GCA, this will be invested primarily to help Massachusetts businesses and residences become more energy efficient.
- MassDEP and DOER are currently finalizing draft regulations for public comment and public hearing anticipated to be held this summer.

# Electric Vehicles (EV)

- EEA recently launched the Massachusetts Electric Vehicle Incentive Program (MassEVIP);
- Funding to municipalities to help purchase electric or plug-in hybrid passenger vehicles and to communities for installation of dual electric charging stations;
- \$ 2.5 million incentive program will help reduce GHG emissions, improve air quality and reduce reliance on foreign oil.



# GWSA Implementation Subcommittees

- Buildings, Energy Efficiency and Demand-Side Management  
(Tina Halfpenny, Department of Energy Resources (DOER))
- Energy Generation and Distribution  
(Bram Claeys, DOER)
- Transportation, Smart Growth and Land Use  
(Catherine Cagle, Massachusetts Department of Transportation (MassDOT))  
  
(Kurt Gaertner, Co-Chair, EEA)
- Non-Energy Emissions  
(Sharon Weber, MassDEP)
- Adaptation  
(Kathy Baskin, EOEEA)



# Buildings

## Energy Efficiency and Demand-Side Management

- 2020 Plan projects 9.8% GHG emissions reduction
- The subcommittee is implementing the following key strategies to meet its GHG emission reduction targets:
  - All Cost-Effective Energy Efficiency
  - Advanced Building Energy Codes
  - Building Energy Rating and Labeling
  - Developing a Mature Market for Solar Thermal Water and Space Heating
  - Expand Energy Efficiency to Oil in Commercial and Industrial buildings
  - Federal Appliance and Product Standards
  - Green Communities Designation and Grant Program
  - Leading by Example
  - Tree Retention and Planting to Reduce Heating and Cooling Loads

# Buildings

## Energy Efficiency and Demand-Side Management

### Supplemental Strategy Ideas:

- **Energy Efficiency- Multifamily/ Rental Housing:**  
Improve the energy efficiency of rental housing through various strategies
- **Energy Efficiency- Commercial Real Estate:**  
Complement the utilities' strategic planning to serve commercial real estate through numerous strategies

# Energy

## Generation and Distribution

- 2020 Plan projects 7.7% GHG emissions reduction
- The subcommittee is implementing the following key strategies to meet its GHG emission reduction targets:
  - Clean Energy Imports
  - Clean Energy Performance Standard
  - Expanded Renewable Portfolio Standard (RPS) and Alternative Portfolio Standard (APS)
  - More Stringent EPA Power Plant Rules
  - Offshore Wind
  - Regional Greenhouse Gas Initiative (RGGI)
  - Renewable Heating and Cooling



# Energy

## Generation and Distribution

### Supplemental Strategy Ideas:

- **Renewable Thermal Incentive:** Sets a hard target for a full portfolio of renewable thermal technologies. Incorporates renewable thermal into the APS.
- **Modernize the Grid:** Transform the power grid to accommodate high penetration of variable generation, storage, and electric vehicles; manage peaks and reduce line losses.

# Transportation

## Smart Growth and Land Use

- 2020 Plan projects 7.6% GHG emissions reduction
- The subcommittee is implementing the following key strategies to meet its GHG emission reduction targets:
  - Federal and California Vehicle Efficiency and GHG Standards
  - Federal Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Vehicles
  - Federal Renewable Fuel Standard
  - (RFS) and Regional Low Carbon Fuel Standard (LCFS)
  - GreenDOT/Modeshift
  - Pay As You Drive Auto Insurance (PAYD)
  - Smart Growth Policy Package

# Transportation

## Smart Growth and Land Use

### Supplemental Strategy Ideas:

- **Clean/Electric Vehicle Incentives:** Increase use of zero emission and alternative fuel vehicles by enhancing activities and potential incentives
- **Increase Vehicle Efficiency through Tire Inflation:** Require tire check and inflation every time a vehicle is serviced
- **Planning Ahead for Growth:** Advance policies that support housing and economic development goals consistent with the MA Sustainable Development Principles

# Non-Energy Emissions

- 2020 Plan projects 2.0% GHG emissions reduction
- The subcommittee is implementing the following key programs to meet its GHG emission reduction targets:
  - Reducing Emissions from Plastics Combustion
  - Reducing Sulfur Hexafluoride (SF6) Emissions from Gas-Insulated Switchgear
  - Stationary Equipment Refrigerant Management

# Non-Energy Emissions

## Supplemental Strategy Ideas:

- Reduce Emissions from the Natural Gas Distribution Network
- Reduce Fluorinated Gas Emissions from the Semiconductor Industry

# Adaptation & Mitigation

- *Climate Change Adaptation Report* in 2011.
- Proposed strategies (>200) to adapt and to mitigate impacts
- Addressed effects on: Natural Resources and Habitat; Key Infrastructure; Human Health and Welfare; Local Economy and Government; and Coastal and Ocean Zones



# Adaptation & Mitigation

- Next Steps: Re-engaging broad stakeholder group in a “post-Sandy” world
- Priority projects identified include:
  - data collection
  - risk assessment
  - retrofits and infrastructure protection
  - enhancing emergency preparedness
- Ongoing adaptation projects at agencies



# GWSA Implementation

- Five Subcommittees developed workplans to implement the 28 strategies outlined in the CECP
- Draft workplans presented to IAC in September 2012
- Jan '13 IAC - supplemental strategy ideas, adaptation & preparedness, workplan updates
- Strategy tracking and Performance Management System under development
- Ongoing development of GHG Inventory and evaluation of progress towards 2020 goals in terms of actual emission reductions across all sectors





# Barr Grant

- The Barr Foundation awarded EEA with a \$230,000 grant in September 2012 to develop a **Clean Energy and Climate Plan Performance Management System (CCPMS)** to
  - Monitor and evaluate the success of the Commonwealth's GHG emissions reductions strategies;
  - Communicate with the public; and
  - Serve as a regional and national model that other states can adopt to analyze their efforts to reduce GHG emissions
- Collaborated with Environmental League of Mass(ELM/GWSP) on design and content for a preliminary dashboard on Earth Day 2013 <http://www.mass.gov/eea/air-water-climate-change/climate-change/massachusetts-global-warming-solutions-act/global-warming-solutions-act-dashboard.html>
- The CCPMS is scheduled for completion in October 2013



# Inventory vs. 2020 Strategy metrics

- GHG Inventory is the “gold standard” to determine whether the 2020 statewide emissions limit is met.
- Partial annual draft spreadsheet shortly after June each year, when virtually 99% of data available
- Full annual draft spreadsheet in Jan/Feb of each year, when 100% of data available
- Full 3-year final spreadsheet and document to comply with GWSA

[http://www.mass.gov/dep/air/climate/gwsa\\_docs.htm#inventory](http://www.mass.gov/dep/air/climate/gwsa_docs.htm#inventory)



# Milestones

- 2012 GWSA Annual Report - April 2013
- GWSA/ELM Joint Dashboard - April 2013
- CCPMS - September 2013
- GWSA 5 Year Update - January 2014
- 2020 plan update - December 2015

# Questions/Comments?

For more information on GWSA & the  
GHG Dashboard

<http://www.mass.gov/eea/gwsa>